

CODED-LIGHT DUAL-VIEW PROFILE SCANNING APPARATUS

ABSTRACT

A scan head for a surface profile scanner includes two spaced laser projectors and two spaced CCD cameras, aligned with one another, for scanning an object such as a log or board moving along a sawmill production line and for determining the location of points on the surface of the scanned object, thereby generating data from which the surface profile of the object can be computed. For log scanning, the projectors both project coded light patterns. For board scanning, one projector projects a coded light pattern and the other a fan of uncoded light. The lasers and cameras are grouped in two pairs, one pair at each end of the scan head, preferably with the cameras bracketing the lasers, such that four sets of reflection data are available, through time-division multiplexing, in order to enable recognition of the image of the pattern reflected from the object and to optimize data readings from triangulation (to calculate the distances from the scan head to a series of points on the object). In the case of board scanning, the uncoded light image may be used for gray-scale image generation, board edge detection, and reflectivity compensation.

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